

Tenecteplase Administration: Safety Considerations

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Tenecteplase for Stroke

Tenecteplase is an FDA-approved thrombolytic medication for acute ischemic stroke in adults within 4.5 hours of symptom onset. The FDA approval is based on the AcT trial (Alteplase Compared to Tenecteplase) conducted in Canada, which demonstrated non-inferiority of Tenecteplase compared to alteplase. Tenecteplase has a higher fibrin specificity, longer half-life and possibly lower rate of intracranial hemorrhage when compared to alteplase¹. There is improved ease of administration of tenecteplase, which reduces potential for medication errors, dose interruption and time delays while facilitating interhospital transfer.¹ Research continues to explore the optimal use of tenecteplase in different stroke populations and time windows.

Safety Considerations

The following are considerations for hospitals related to safe storage and use of tenecteplase in treatment of acute ischemic stroke. Work with your telestroke and/or stroke center partner, stroke teams, and pharmacy department to adopt safety considerations that best fit your workflow and organizational needs and resources.

- Storage: *Locked in secure location*
 - Medication dispensing system (e.g., Pyxis, Omnicell)
 - Cabinet
 - Pharmacy
- Dosing: *Dosing for MI is different than the dosing for stroke*
 - Stroke dose: 0.25 mg/kg
- **Maximum stroke dose = 25mg (5mL)**

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- **Tenecteplase in Acute Ischemic Stroke Dosing Chart:**

Patient Weight (kg)	MAX Dose (mg)	MAX Volume (mL)
60 kg or less	15 mg	3 mL
60.1 kg – 64 kg	16 mg	3.2 mL
64.1 kg – 68 kg	17 mg	3.4 mL
68.1 kg – 72 kg	18 mg	3.6 mL
72.1 kg – 76 kg	19 mg	3.8 mL
76.1 kg – 80 kg	20 mg	4 mL
80.1 kg – 84 kg	21 mg	4.2 mL
84.1 kg – 88 kg	22 mg	4.4 mL
88.1 kg – 92 kg	23 mg	4.6 mL
92.1 kg – 96 kg	24 mg	4.8 mL
96.1 kg – 100 kg or more	25 mg	5 mL

- **Further Safety Considerations:**
 - Consider creating a separate cell/drawer space within medication dispensing systems for tenecteplase in acute ischemic stroke vs. tenecteplase in MI.
 - Consider labeling options that emphasize tenecteplase for stroke such as a bright colored label/notification indicating use for acute ischemic stroke or rubber banding a tactile reminder (especially if your facility has one box that may be used for both MI and or stroke).
 - Provide education and training to staff on the safe administration of IV tenecteplase for stroke. Consider hands-on competency for nursing staff.

Administration:

- Obtain and document actual weight for dosing.
- Verify total dose to be administered.
- Complete dual sign-off and document in electronic health record.
- Develop consistent process for administering.
- Further safety considerations:
 - Use no larger than 5 mL syringe for administration
 - Round the dose for more accurate dosing.
 - *Consider the Rule of 5s for safe administration (Courtesy of HealthPartners, Regions Hospital)*

Monitoring:

- Close and frequent patient monitoring within the initial 24 hours post-administration is expected.
- Follow clinical practice guidelines for vital signs and neurologic assessment frequencies ^{2,3,4} (2-package insert, 3-AHA Nursing Scientific Statement, 4-OPTIMISTmain)
- Assess for bleeding
 - Assess for any changes in neurological condition (e.g.,severe headache, acute hypertension and/or bradycardia, nausea or vomiting, or decrease in level of consciousness)
 - Notify practitioner and prepare for stat imaging
- Follow reversal protocol if hemorrhage is present⁵
- Assess for angioedema/hypersensitivity
- Assess for orolingual angioedema (acute swelling of lips, tongue or throat)
- Treat according to protocol for allergic reaction/anaphylaxis⁶
 - Monitor airway, consider early intubation for any airway compromise
- HOLD anticoagulant and antiplatelet agents in the first 24 hours post thrombolytic therapy

This document is developed in partnership with the Minnesota Stroke Advisory Group. Last updated: December 2025. For questions, please contact the MDH Stroke Program at health.stroke@state.mn.us

References:

1. 2019 Update to the 2018 Guidelines for Management of Acute Ischemic Stroke. A Guideline for Healthcare Professionals from the American Heart/American Stroke Association. Table 6. *Stroke*, Vol. 49.

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2. 2019 Update to the 2018 Guidelines for Management of Acute Ischemic Stroke. A Guideline for Healthcare Professionals from the American Heart/American Stroke Association. Table 7. *Stroke*, Vol. 49.
3. Wang, L, Hao, M, Wa, N, Shuangzhe, W; Fisher, M, and Xiong, Y. (2024). Comprehensive Review of Tenecteplase for Thrombolysis in Acute Ischemic Stroke. *Journal of the American Heart Association*. 13 (9). <https://doi.org/10.1161/JAHA.123.031692>
4. Genentech TNKase Prescribing Information. South San Francisco, CA. Genentech, Inc.
5. Warach, S., Dula, A, Milling T. (2020, November). Tenecteplase Thrombolysis for Acute Ischemic Stroke. *Stroke Volume 51, Issue 11, November 2020; Pages 3440-3451* <https://www.ahajournals.org/doi/10.1161/STROKEAHA.120.029749>
6. Anderson, Craig SJala, Sheila et al. (2025) Safety and efficacy of low-intensity versus standard monitoring following intravenous thrombolytic treatment in patients with acute ischaemic stroke (OPTIMISTmain): an international, pragmatic, stepped-wedge, cluster-randomised, controlled non-inferiority trial. *The Lancet*, Volume 405, Issue 10493, 1909 – 1922. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(25\)00549-5/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(25)00549-5/fulltext)